

Appl. No. 10/791,533
Art Unit: 2854
Response to Office Action
Mailed October 15, 2005
Attorney Docket No.: 26047

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. to 6. (Canceled)

- 1 **7. (New)** A probe for detecting a short-circuit caused by an electrical short
2 between a first electrically conductive element located in a probed area and a
3 second electrically conductive element, said probe comprising:
4 a probe body having a housing;
5 an electrically conductive probe pin mounted within an internal cavity of
6 the housing, said probe pin having a first end and a second end, said first end
7 being adapted for coupling to a source of electrical voltage;
8 a releasable clamp for clamping the second end of the probe pin to the
9 probe area, while permitting the probe pin to effect electrical contact with the first
10 electrically conductive element; and
11 a spring activated mechanism operatively coupled to the probe pin, for
12 biasing the releasable clamp toward the probe area to assist attachment when
13 the probe is primed and being adapted to allow limited displacement of the body
14 of the probe away from the probed area while maintaining clamping of the
15 second end of the probe pin to the probe area so as to maintain the electrical
16 contact between the second end of the probe pin and the first electrically
17 conductive element for a short time period on disengagement of the probe.

1 **8. (New)** The probe according to claim 7, wherein the probe pin has a first
2 section and a second section joined to the first section, such that opposing ends
3 of the first section and the second section define the first end and the second
4 end, respectively, of the probe pin, and the spring activated mechanism includes:
5 a push spring wound around the first section of the probe pin, for biasing
6 the releasable clamp toward the probe area to assist attachment when the probe
7 is primed;
8 a limiter device mounted in association with the probe pin and a stoppage
9 step within the internal cavity of the body, said limiter device being adapted to
10 move with the probe pin, the limiter device serving to allow limited displacement
11 of the body of the probe away from the probed area while maintaining clamping
12 of the second end of the probe pin to the probe area so as to maintain the
13 electrical contact between the probe pin and the first electrically conductive
14 element until the limiter device engages the stoppage step, whereupon further
15 displacement of the body of the probe displaces the probe pin away from the
16 probe area thereby disengaging the releasable clamp from the probe area and
17 breaking electrical contact between the probe pin and the first electrically
18 conductive element; and
19 a return spring wound around the second section of the probe pin, said
20 return spring being operable to retain said probe pin away from the probe area
21 when the probe is inactive.

22

1 **9. (New)** The short-circuit detection probe of claim 8, wherein the releasable
2 clamp includes a magnet adapted to magnetically engage the second end of the
3 probe pin and being adapted to effect magnetic coupling to the probe area.

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1 **10. (New)** The short-circuit detection probe of claim 9, wherein said magnet
2 is coupled to the second end of the probe pin.

3

1 **11. (New)** The short-circuit detection probe of claim 8, wherein said limiter
2 device comprises a washer.

3

1 **12. (New)** An apparatus for monitoring continued registration of a sheet of
2 material in a device for processing said sheet, the apparatus comprising:

3 registration means for registering said sheet in a required position;

4 a sensor adapted to cause a short circuit upon sensing a registration
5 condition; and

6 the probe of claim 7 coupled to the sensor for maintaining electrical
7 continuity, thereby continuously monitoring said registration condition during a
8 predefined sequence of operations.

9

1 **13. (New)** The apparatus of claim 12, wherein said sensor comprises an
2 electrical sensor.

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1 **14. (New)** The apparatus of claim 13, wherein said sensor comprises an
2 optical sensor.

1 **15. (New)** An apparatus for monitoring continued registration of a sheet of
2 material in a device for processing said sheet, the apparatus comprising:
3 registration means for registering said sheet in a required position;
4 a sensor adapted to cause a short circuit upon sensing a registration
5 condition; and
6 the probe of claim 9 magnetically connected to the sensor for maintaining
7 electrical continuity, thereby continuously monitoring said registration condition
8 during a predefined sequence of operations.

9
1 **16. (New)** The apparatus of claim 15, wherein said sensor comprises an
2 electrical sensor.

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1 **17. (New)** The apparatus of claim 16, wherein said sensor comprises an
2 optical sensor.

3
1 **18. (New)** A probe for detecting a short-circuit caused by an electrical short
2 between a first electrically conductive element located in a probed area and a
3 second electrically conductive element, said probe comprising:
4 a probe body having a housing;
5 a non-magnetic, electrically conductive probe pin mounted within an
6 internal cavity of the housing, said probe pin having a first section and a second
7 section joined to the first section, such that opposing ends of the first section and
8 the second section define a first end and a second end, respectively, of the probe
9 pin;

10 a magnet adapted to magnetically engage the second end of the probe
11 pin and being adapted to effect magnetic coupling to the probe area, while
12 permitting the probe pin to effect electrical contact with the first electrically
13 conductive element;

14 a push spring wound around the first section of the probe pin, for biasing
15 the magnet toward the probe area to assure attachment when the probe is
16 primed;

17 a limiter device mounted in association with the probe pin and a stoppage
18 step within the internal cavity of the body, said limiter device being adapted to
19 move with the probe pin, the limiter device serving to allow limited displacement
20 of the body of the probe away from the probed area while maintaining magnetic
21 coupling between the magnet and the probe area and maintaining the electrical
22 contact between the probe pin and the first electrically conductive element until
23 the limiter device engages the stoppage step, whereupon further displacement of
24 the body of the probe displaces the probe pin away from the probe area thereby
25 disengaging the magnet from the probe area and breaking electrical contact
26 between the probe pin and the first electrically conductive element; and

27 a return spring wound around the second section of the probe pin, said
28 return spring being operable to retain said probe pin away from the probe area
29 when the probe is inactive.

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1 **19. (New)** An apparatus for monitoring continued registration of a sheet of
2 material in a device for processing said sheet, comprising:

3 registration means for registering said sheet in a required position;

4 a sensor adapted to cause a short circuit upon sensing a registration
5 condition; and

6 a probe magnetically connected to said sensor, for maintaining electric
7 continuity, thereby continuously monitoring said registration condition during a
8 predefined sequence of operations;

9 wherein the probe comprises:

10 a probe body having a housing and a cover, the housing defining an
11 internal cavity having a profile;

12 a probe pin comprising an upper part and a lower part, the probe pin
13 mounted within said internal cavity and comprising electrical connectivity and
14 said lower part comprising a lower end connected to a magnet;

15 a push spring wound around the upper part of said probe pin, said push
16 spring acting as a shock absorber when the magnet detaches from the probed
17 area, said push spring alternatively pushing the magnet toward the probed area
18 to assure attachment when the probe is active;

19 stoppage means mounted at the bottom of said push spring; and

20 a return spring wound around the lower part of said probe pin, said return
21 spring being operable to retain said probe pin in an upper position when inactive;

22 wherein the profile of said internal cavity comprises a stoppage step for
23 accommodating said stoppage means at its lowermost position.

24

1 **20. (New)** The apparatus of claim 19, wherein said sensor comprises an
2 electrical sensor.

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- 1 **21. (New)** The apparatus of claim 19, wherein said sensor comprises an
- 2 optical sensor.